20. Vail Water Company

Vail Water Company is a subsidiary of Horizon Corporation, owner of Rancho Del Lago, an 1800+-acre ranch located near the City of Vail. It was formerly known as the Vail Water Company. The Vail Water Company service area is located north of Sahuarita Road, west of Range 17 East, east of Range 15 East, and south of the Saguaro National Park (east). According to the ADWR Annual Water Withdrawal and Use Report, in the Vail Water Company service area in 1998, a total of 208 af of groundwater were pumped and delivered.

A. Plans to Take and Use CAP Water

The Vail Water Company currently has a subcontract for 786 af of CAP water, but has never taken delivery of any CAP water. Under the Settlement Alternative, the Vail Water Company would receive 1,071 af of CAP water. That CAP water would be delivered for a 50-year contract period (i.e., from 2001-2051). The CAP water would be used to supplement both current and projected water supply demands over the next 50 years and would help reduce the continuing dependence on pumping groundwater from an overdrafted groundwater system. Table L-M&I-117 outlines the proposed allocations by alternative.

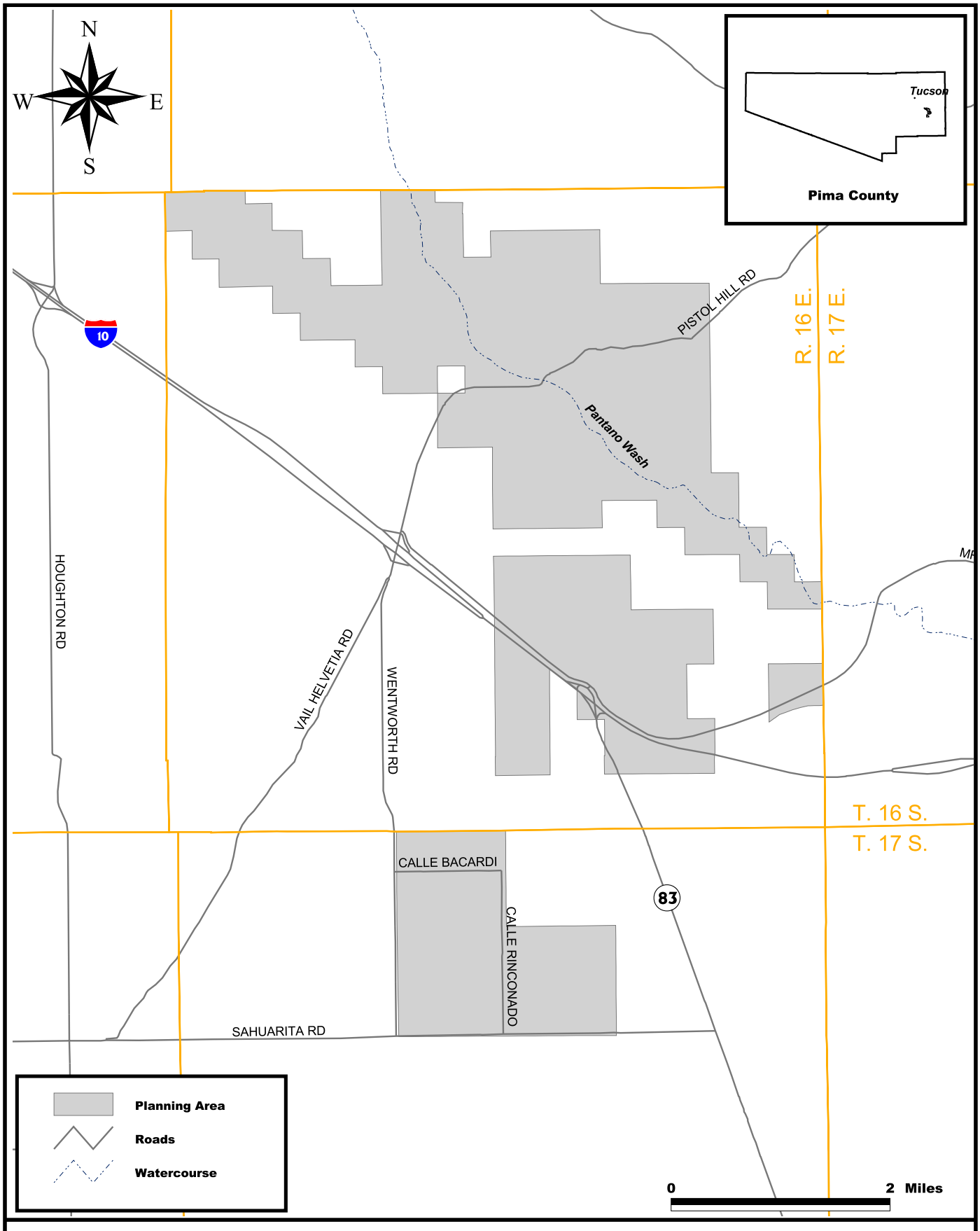
Table L-M&I-117
CAP Allocation Draft EIS
Vail Water Company – Proposed CAP Allocation

Alternative	Allocation (in afa)	Priority
Settlement Alternative	1,071	M&I
No Action	0	--
Non-Settlement Alternative 1	1,071	M&I
Non-Settlement Alternative 2	0	--
Non-Settlement Alternative 3A	0	--
Non-Settlement Alternative 3B	1,712	NIA
Existing CAP Allocation	786	

Figure L-M&I-59 shows the service area for the Vail Water Company, which covers approximately 9,480 acres. The Vail Water Company's plans to take and use CAP water involve in-lieu recharge with Kai Farms. Recovery would utilize existing wells within the Vail Water Company's service area (Noll 2000).

B. Population Projection

The population in 1985 for Vail Water Company service area was 500. The estimated 2001 population is 3,100 and, the estimated 2051 population level is 19,623.



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CAP Allocation Draft EIS
General Location Map
Vail Water Company

Figure #L-M&I-59

C. Water Demand and Supply Quantities

As previously shown in Appendix C-M&I Sector Water Uses, it is estimated that water demand in the Vail Water Company service area would increase from 568 af in year 2001 to 3,958 af in year 2051. The projected water uses both by water source and alternatives are provided below in Table L-M&I-118. Based on these anticipated water demands, the CAP water which would be allocated under the Settlement Alternative would provide over 100 percent and 27 percent of the current estimated water supply required for the Vail Water Company service area for the years 2001 and 2051, respectively.

Table L-M&I-118
CAP Allocation Draft EIS
Vail Water Company– Projected Water Use

Alternative	Annual CAP Deliveries		Groundwater		Effluent		CAGRD (Groundwater)		Total Demand	
	2001	2051	2001	2051	2001	2051	2001	2051	2001	2051
Settlement Alternative	0	1,857	568	0	0	0	0	1,741	568	3,598
No Action	0	786	568	0	0	0	0	2,812	568	3,598
Non-Settlement Alternative 1	0	1,857	568	0	0	0	0	1,741	568	3,598
Non-Settlement Alternative 2	0	786	568	0	0	0	0	2,812	568	3,598
Non-Settlement Alternative 3A	0	786	568	0	0	0	0	2,812	568	3,598
Non-Settlement Alternative 3B	0	1,857	568	0	0	0	0	1,741	568	3,598

Note: A more detailed breakdown of supplies may be found in Appendix C.

It is estimated that the demand for water at the end of the CAP contract period would be approximately 3,598 af. For all alternatives, there is estimated to be no unmet demand. In the Settlement Alternative, Non-Settlement Alternative 1 and 3B, 1,071 afa of demand are met by the additional CAP allocation. Alternatively, this 1,071 afa of demand are met by CAGRD membership under the No Action Alternative and Non-Settlement Alternative 2 and 3A.

D. Environmental Effects

The following sections include a general description of existing conditions relating to land use, water resources and socioeconomics for each entity. The following summaries also include a description of the existing conditions and brief description of the impacts to biological and cultural resources that would result from construction of CAP delivery facilities and conversion of desert and agricultural lands to urban uses.

1. Land Use

Land use data for the Vail Water Company were obtained based upon the review of 1998 aerial photographs and the result of the field surveys and habitat mapping completed as part of the biological analysis in this EIS. Table L-M&I-119 provides the projected acres of land within the Vail Water Company service area, which are agriculture, desert or urban and the number of acres expected to change from the existing category for the years 2001 and 2051.

TableL-M&I-119
CAP Allocation Draft EIS
Vail Water Company– Projected Land Use Changes Within the Service Area (in acres

Alternative	Year	Agriculture	Agriculture Urbanized	Desert	Desert Urbanized	Urban	Changed to Urban Acreage
Settlement Alternative	2001	0	--	8,161	--	1,319	--
	2051	0	0	7,230	931	2,250	931
No Action	2001	0	--	8,161	--	1,319	--
	2051	0	0	7,230	931	2,250	931
Non-Settlement Alternative 1	2001	0	--	8,161	--	1,319	--
	2051	0	0	7,230	931	2,250	931
Non-Settlement Alternative 2	2001	0	--	8,161	--	1,319	--
	2051	0	0	7,230	931	2,250	931
Non-Settlement Alternative 3A	2001	0	--	8,161	--	1,319	--
	2051	0	0	7,230	931	2,250	931
Non-Settlement Alternative 3B	2001	0	--	8,161	--	1,319	--
	2051	0	0	7,230	931	2,250	931

2. Archaeological Resources

Survey coverage of the Vail Water Company service area was primarily linear, although a few small block surveys have taken place in the northwest portion of the service area, where numerous sites have been found. The service area extends onto the Colossal Cave County Park, a National Register property consisting of more than 20 prehistoric, protohistoric, and historic activity loci; similar remains might be expected in adjacent, unsurveyed portions of the service area. Documented prehistoric resource types include undifferentiated lithic scatters, sherd scatters, and agricultural features (e.g., rock piles, clusters). The Vail Station (AZ BB:14:18(ASM)), a historic site associated with the Union Pacific/Southern Pacific Railroad is within the Vail Water Company service area boundaries. This site, which is characterized by artifacts and features of Anglo, Mexican, and Chinese affiliation, was the main depot for miners working in the Santa Rita Mountains; it is likely that other sites associated with mining and/or transportation might

present within the service area boundaries.

Cultural resource sensitivity areas in this entity are shown in Figure L-M&I-60. Based on the limited data used to generate the cultural sensitivity designations, the potential for cultural resource impacts in the Vail Water Company service area is moderate. Mitigation of cultural resource impacts due to urban expansion would be determined by local jurisdictions and development of applicable permit requirements (such as the CWA Section 404 permit). Impacts on cultural resources due to future land use changes would be identical for each of the five alternatives. Mitigation for such impacts would be dependent on the requirements of the local jurisdiction. With regard to water delivery facilities, Reclamation would carry out additional cultural resource compliance as appropriate, prior to water delivery.

3. Biological Resources

Existing Habitats

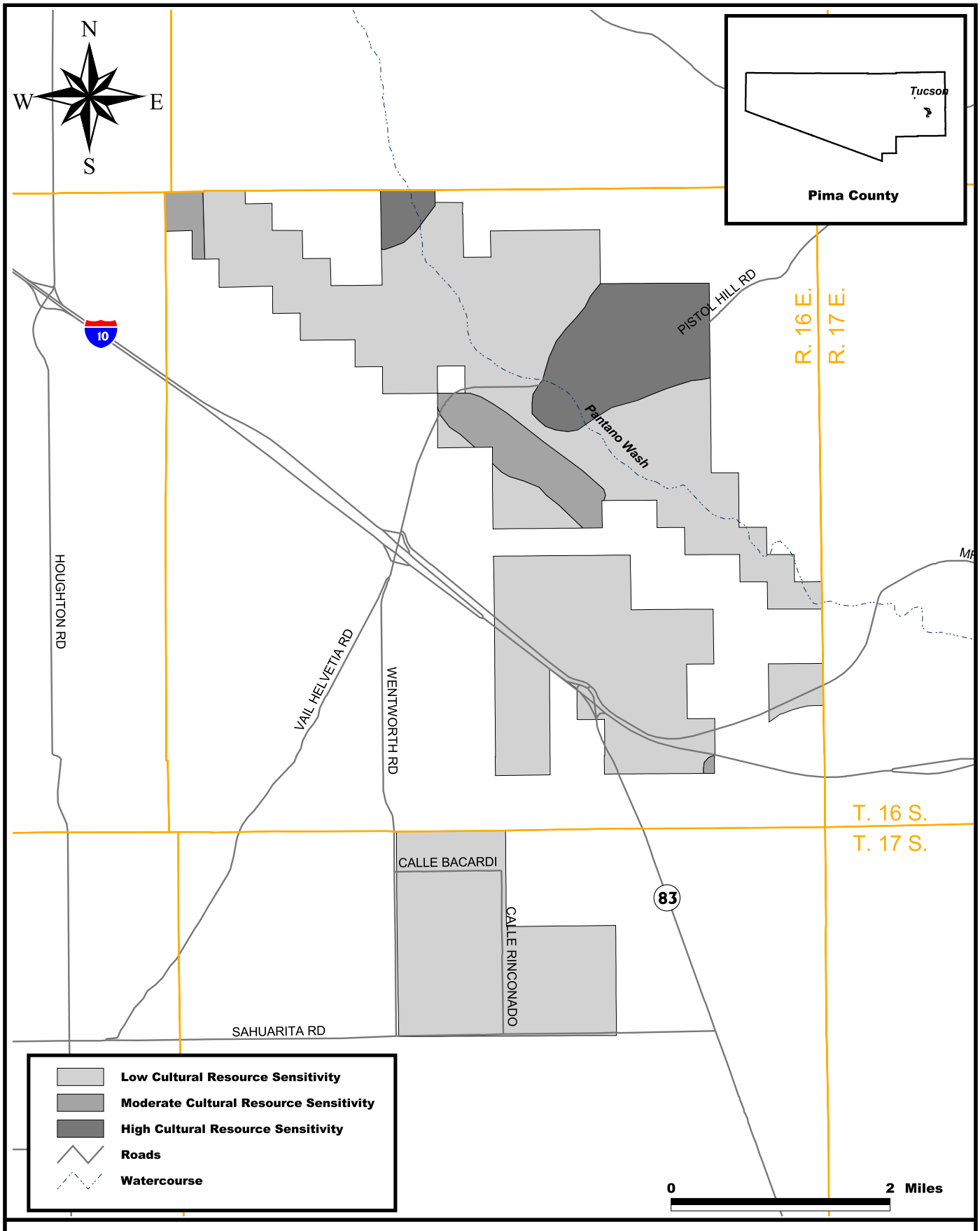
The Vail Water Company service area occurs on broad alluvial plains. The Bursage/Foothill Paloverde Association occurs on coarser soils where co-dominant trees include velvet mesquite and saguaro. Creosote-Bush Association and Disclimax Grassland Association occurs on the siltier soils, where saguaro density is low. Co-dominants include chain-fruit cholla, white-thorn acacia, and tiquilia. Common trees include foothill paloverde and velvet mesquite. Whitestem paperflower is unusually common within all communities. The habitat zones are shown on Figure L-M&I-61. Table L-M&I-120 provides the habitat acreages for the habitat zones described above.

Table L-M&I-120
CAP Allocation Draft EIS
Vail Water Company- Habitat Acreages

Vegetation Name	Acres
Developed	1,319
Bursage/Foothills Paloverde	1,647
Scoured, Washes and Creeks	225
Creosote-Bush	2,453
Snakeweed/Velvet Mesquite	3,836
Total	**9,480**

Impacts to Biological Resources

Under the No Action Alternative, urban growth within the Vail Water Company service area would result in loss of an estimated 931 acres of Sonoran Desertscrub and associated wildlife resources. Under the action alternatives, there is no difference in impacts from the No Action baseline. With regard to construction of CAP delivery facilities, Reclamation would carry out additional environmental review once plans are developed.



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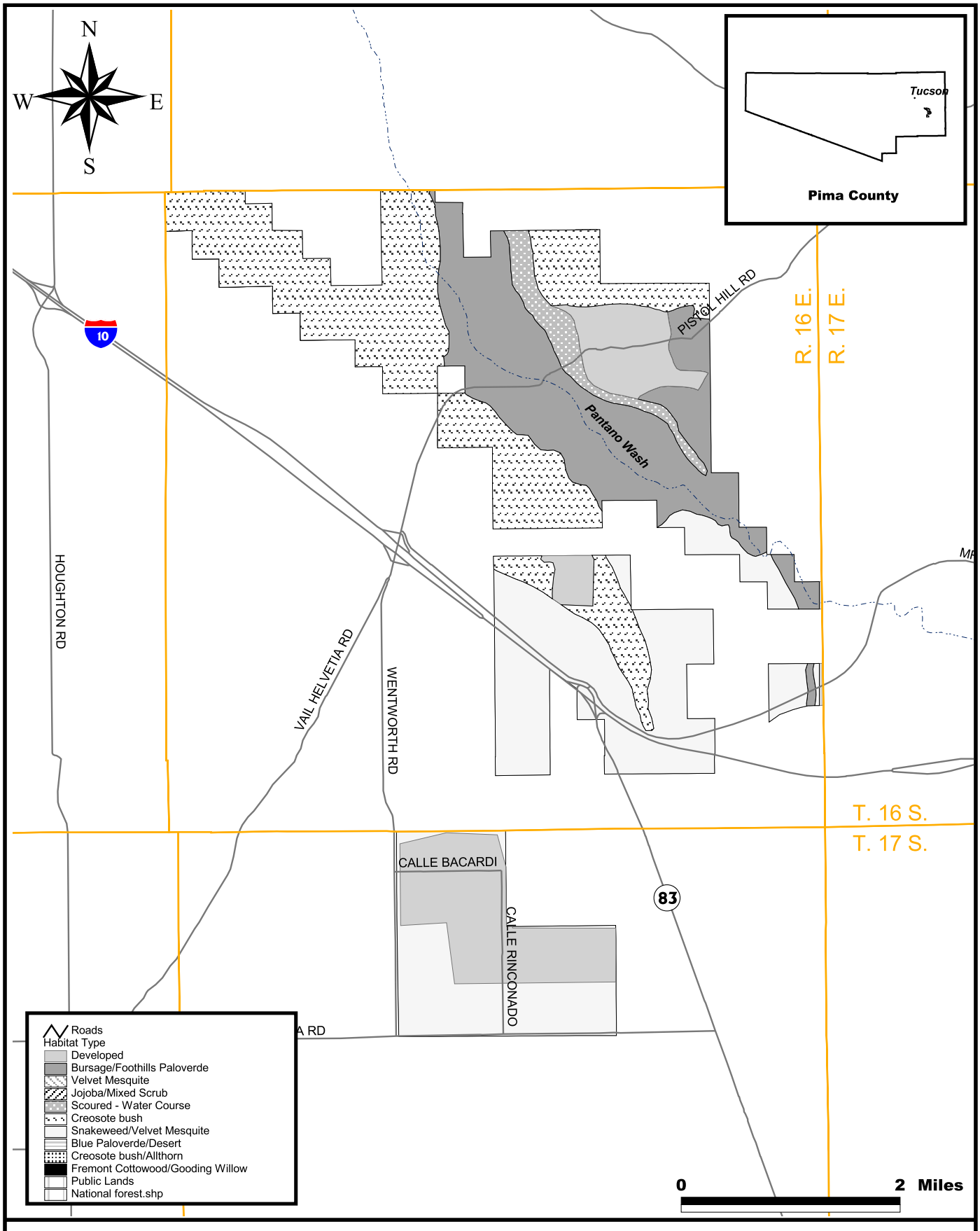
CAP Allocation Draft EIS
Cultural Resources
Vail Water Company

Figure #L-M&I-60



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CAP Allocation Draft EIS
Habitat Zones
Vail Water Company

Figure No. L-M&I-61

Potential T&E Species and Acres of Potential T&E Species Habitat

Because the allocation of CAP water has no effect on urban growth, there would be no effect on T&E species from the CAP allocation. The appropriate municipal or local governmental jurisdiction would be responsible for complying with the provisions of the ESA as it permits and approves future urban growth.

The Vail Water Company service area is located within Pima County for which there are 16 T&E species listed by USFWS. However, potentially suitable habitat only exists for cactus ferruginous pygmy-owl and the Pima pineapple cactus. There is no designated critical habitat for the Pima pineapple cactus and approximately 5,209 acres of potentially suitable habitat have been identified. Also, approximately 1,647 acres of potentially suitable habitat for the cactus ferruginous pygmy-owl have been identified within the Vail Water Company service area.

4. Water Resources

Demands in the Vail Water Company have historically been met by pumping groundwater from the underlying sedimentary rocks. This reliance on groundwater has resulted in declining groundwater levels over time. The concentration of TDS in the underlying groundwater is generally from 500 to 1,000 ppm.

Estimated groundwater level impacts are summarized in Table L-M&I-121, which shows the estimated groundwater level change for the period form 2001-2051 as well as the groundwater level impacts or the difference between the change in groundwater levels for each alternative relative to the change for the No Action Alternative. Under the No Action Alternative, groundwater levels would decline by about 68 feet from 2001 to 2051. This decline would primarily result from increased demands over time that would be met through increased local groundwater pumping. This includes both Vail Water Company pumping and nearby pumping for the City of Tucson. CAP water available to the Vail Water Company would be both delivered directly and recharged in direct recharge facilities. The direct recharge facilities would be located away from the Vail Water Company wells, which would limit the benefit of that recharge on the local groundwater levels. Substantial changes in groundwater quality would not be anticipated. However, there would be the potential for subsidence due to the lower groundwater levels.

Groundwater levels would also decline for all of the action alternatives. However, the declines would be slightly smaller for all of the action alternatives than for the No Action Alternative (by four to 12 feet, depending on the alternative). The smaller declines are primarily a reflection of changes in groundwater underflows that result from higher groundwater levels to the west of the Vail Water Company due to greater amounts of direct recharge by the San Xavier District of the Tohono O'odham Nation and in the Pima Mine Road facilities.

The groundwater level declines estimated for all alternatives for the 2001 to 2051 period could result in subsidence in this area.

Table L-M&I-121
CAP Allocation Draft EIS
Vail Water Company–Groundwater Data Table

Alternative	Vail*	
	Estimated Groundwater Level Change from 2001-2051 (in Feet)	**Groundwater Level Impact** (in Feet)**
No Action	-68	--
Settlement Alternative	-55	13
Non-Settlement Alternative 1	-63	4
Non-Settlement Alternative 2	-59	8
Non-Settlement Alternative 3A	-59	8
Non-Settlement Alternative 3B	-55	12

*****Values correspond to the Vail sub-area, as discussed in Appendix I.
** Computed by subtracting the estimated groundwater decline from 2001 to 2051 for the No Action Alternative from the estimated change in groundwater level for the same period for the alternative under consideration. The estimated impact is considered to be more accurate than the estimated decline in groundwater levels.

5. Socioeconomic

The same population growth is supported under all alternatives, including the No Action Alternative. However, the cost of providing water may vary by alternative. Costs were estimated, on a per af basis, for providing the proposed allocations and, in their absence, alternative water supplies. The alternative water supplies include joining the CAGRD and, if needed, treating and reusing effluent. The difference in cost for this small increment of Vail Water Company's total water supply is considered insignificant. It should be noted that the increment of demand met by the proposed CAP allocation is approximately 29.8 percent of the total year 2051 demand for Vail Water Company.

Table L-M&I-122
CAP Allocation Draft EIS
Vail Water Company–Cost of Potable Water for Additional Allocation Increment

Alternative	Cost of Water ($ per af)	Water Source
Settlement Alternative	154[a]	CAP Allocation
No Action	223 – 227[b]	CAGRD
Non-Settlement Alternative 1	154[a]	CAP Allocation
Non-Settlement Alternative 2	223 – 227[b]	CAGRD
Non-Settlement Alternative 3A	223 – 227[b]	CAGRD
Non-Settlement Alternative 3B	154[a]	CAP Allocation

Notes:
a. Estimated average unit cost in year 2000 dollars.
b. Estimated range of unit costs in year 2000 dollars. Range is due to estimated change in groundwater pumping lifts during study period and does not include wellhead treatment costs.